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West American Scientist

V. 13 NO 3 (whole no. 118)

Oct. 1902

Oct. 1902

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Vol. XIII. No. 3. *Oct., 1902.* *Whole No. 118.*

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ECHINOCACTUS WIPPERMANNII Mueh.

ECHINOCACTUS WISLIZENI Engelm.
Variety ALBISPINA Tourmey.
Variety DECIPIENS Engelmann.

Genus ECHINOCEREUS Engelmann.

Included under the genus Cereus.

E. Berlandieri Lem, is Cereus Berlandieri E.
E. Blankii Palm, is Cereus Blankii Pos.
Echinocereus conglomeratus F, is Cereus polyacanthus.
Echinocereus leeanus Lem, is Cereus polyacanthus.
Echinocereus leonensis Maths, is Cereus leonensis.
E. Leptacanthus KS, is Cereus leptacanthus S.
Echinocereus Merkeri Hildm, is Cereus Merkeri.
Echinocereus paucispinus Lem, is Cereus polyacanthus.
E. procumbens Lem, is Cereus procumbens E.
E. pulchellus KS, is Cereus pulchellus Pf
E. Salm-Dyckianus Scheer, is Cereus Salm-Dyckianus Web.
E. Scheeri Lem, is Cereus Scheeri S.
E. subinermis S, is Cereus subinermis.
E. tuberosus Rumpl, is Cereus tuberosus Pos.

Genus ECHINOPSIS Zuccarini.

Included under the genus Cereus.

ECHINOPSIS AMOENISSIMA Wend.
ECHINOPSIS CAMARCENSIS Web.
ECHINOPSIS CINNABARINA Lab.
Bolivia, South America.
ECHINOPSIS DROEGEANA Berge.
ECHINOPSIS D'ORBIGNIS-PAULI F.
ECHINOPSIS EYRIESII Zucc.
ECHINOPSIS FORMOSA Jac.
ECHINOPSIS GEMMATA KS.
Brazil, South America.
ECHINOPSIS HUOTTII Lab.
ECHINOPSIS HUOTTII Schlumb.
ECHINOPSIS LAGEMANNII Deetr.
ECHINOPSIS LEUCANTHA Walp.
ECHINOPSIS MULLERI. A hybrid, of rapid growth, blooming early, and with its large satiny rose-colored flowers is justly called the finest of its class.
ECHINOPSIS MULTIPLEX Zucc.
Brazil, South America.
ECHINOPSIS NIGRICANS Link.
ECHINOPSIS OBREPANDA KS.
Bolivia, South America.
ECHINOPSIS OXYGONA Zucc.
Brazil, South America.
ECHINOPSIS PENTLANDII S.
Peru, South America.
ECHINOPSIS PUDANTII Hort.
ECHINOPSIS RHODACANTHA S.
ECHINOPSIS ROHLANDII Hort.
ECHINOPSIS SALMIANA Web.
Variety BRIDGESII KS.
ECHINOPSIS SCHICKENDANTZII Web.
ECHINOPSIS SIMPLEX Niedt.
ECHINOPSIS TOUGARDII L'Her.
ECHINOPSIS TUBIFLORA Zucc.
Variety NIGRISPINA KS.
Echinopsis turbinata Zucc, is gemmata fide KS.
ECHINOPSIS VALIDA Mony.
Paraguay Republic South America.
Variety FORBESII R. Mey.
ECHINOPSIS WILKENSII Hort.
Echinopsis zuccarinii (zuccariniana) Pf, is tubiflora fide KS.
Epithelantha micromeris Web, is Mammillaria micromeris Engelmann.

Genus EPIPHYLLUM Pfeiffer.

EPIPHYLLUM ALTENSTEINII Pfr.
EPIPHYLLUM GUEDNEYRI Houl.
EPIPHYLLUM MACKOYANUM Hort.
EPIPHYLLUM OBOVATUM E.
EPIPHYLLUM RUSSELIANUM Hook.
EPIPHYLLUM TRUNCATUM Haw.
Inch, Crab, or Lobster Cactus: a native of Brazil, popular as a house plant.
GRUSONIA CEREIFORMIS F Rchb, is Opuntia cereiformis Web fide KS.
Genus GYMNOCALYCIUM Pfeiffer.
G. gibbosum Pf, is Echinocactus monvillei.
G. reductum Pf, is Echinocactus gibbosus.
G. villosum F, is Echinocactus villosus.

Genus LEPISMIUM Pfeiffer.

The published species, as far as known, are considered as synonyms of Rhipsalis.

Genus LEUCHTENBERGIA Fisch.

LEUCHTENBERGIA PRINCIPIS Fisch.
Near Zimpan, Mexico.

Genus LOPHOPHORA Coulter.

LOPHOPHORA WILLIAMSII Coulter.
See Echinocactus williamsii.

Genus MALACOCARPUS Salm.

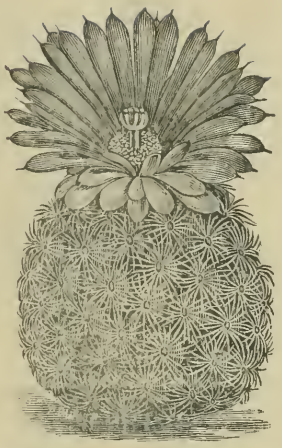
Nearly all the published species are considered as synonyms of Echinocacti, of the same specific names.
The identity of M. Martini Labour. (ex Foerster, Handb Cact ed 2, 1:454) and habitat are unknown.

Genus MAMMILLARIA Haworth.

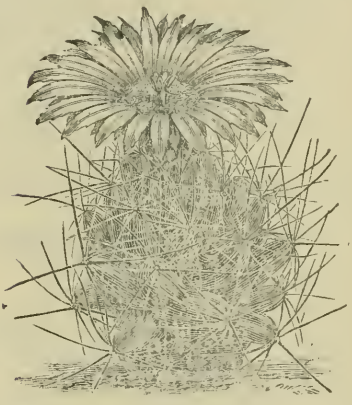
"Flowers about as long as wide; the tube campanulate or funnel-shaped. Ovary often hidden between the bases of the tubercles, as well as the exsert succulent berry, naked. Seeds yellowish-brown to black, exalbuminous or nearly so. Embryo mostly short and straight, with extremely short cotyledons parallel to the sides of the seed.—Small, more or less globose or oval simple or cespitose plants, the spine-bearing areolae borne on cylindric, oval, conic, or angular tubercles, which cover the body of the plant. Flowers form a distinct woolly or bristly areola at the base of these tubercles, fully open in sunlight, mostly only for a few hours."—E.

Subgenus COCHEMIEA. Plants cylindrical, usually much elongated, with watery juice, and grooveless tubercles. Flowers mostly in a ring near the vertex, several times longer than broad,

MAMMILLARIA MEIACANTHA Engelm.

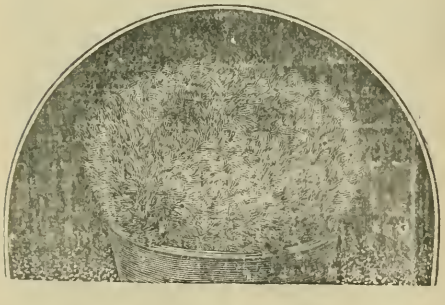


MAMMILLARIA PECTINATA Engelm.



MAMMILLARIA MACROMERIS Engelm.

MAMMILLARIA BOCASANA Poselg.



MAMMILLARIA LASIACANTHA Engelm.

MAMMILLARIA WRIGHTII Engelm.

scarlet, tubular, slender, somewhat curved and oblique with spreading, unequal, petaloid sepals, so making the flower apparently double as in Cereus flagelliformis. Stamens and style red, exserted.

MAMMILLARIA HALEI Brandegee.

"Cactus obtuse, stems 8-10, about a foot high, 5-8 inches in diameter, straight, covered with dark-colored straight spines; tubercles short, rounded, woolly in the axils; spines 15-25, ½ inch long, with 3-4 of the interior ones stouter and an inch long; flowers an inch long, vertical from the axils of young tubercles, scarlet; sepals all scarlet, petaloid; anthers scarlet, filaments exserted, yellowish, stigma scarlet: fruit red, clavate, ½ inch long; seeds smooth. A handsome species, seen only upon Magdalena and Santa Margarita Islands, where it is very abundant."—Brandegee Cal acp sr 2, 2:161, t 6.

MAMMILLARIA FONDII Greene.

"From a few inches to a foot high, simple or with a few oval or cylindrically elongated branches; growing parts tomentose: radial spines 20-30, white, slender; central 4 or 5, the longest more than an inch in length, rigid and strongly hooked, dark brown above the middle: flowers nearly 2 inches long, bright scarlet. Near M. Goodridgii, and differing from it in its large size and brilliantly colored ample flowers. The plants were in flower in February. The species comes from the southwestern part of Cedros Island."—Greene Pittonia 1:268 (20 Mr 1889).

Fruit 20 mm long, 10 m in greater diameter, greenish, base imbedded in wool, remains of flower persistent, pulp slightly acid, greenish (May 6, 1890): seeds 0.5 mm in diameter.

MAMMILLARIA ROSEANA Bndg.

"Stems numerous from the root, spreading, curved, ascending, one-third to 2 mm long, 4 cm thick; mamillae arranged in quincunxial order, 15 mm apart, cylindrical, 12 mm long, white-woolly in the upper axils; pulvinae finely pubescent; radial spines 7-9 in number, 9-12 mm long, brown or straw colored, the single central spine 25 mm long, curved, hooked at the tip; flowers from the axils of the upper mamillae, 3 cm long; sepals and petals bright scarlet, joined into a tube, spreading at their tips, in several series; stamens and style scarlet; style branches 5-7; fruit scarlet, pyriform, 6-8 mm long; seeds black, pitted; cotyledons united, only a depressed line at their tips; albumen none.—Throughout the lower elevations of the Cape Region and northward to Calmalli. This cactus is one of the most showy of Lower California. Dr. Palmer collected it at La Paz and it is No. 139 of the list from that place in Contr. U. S. Herb. No. 3, catalogued by Mr. Rose, for whom it is appropriately named. The stems pendent from rocks at Comondu are sometimes 6 feet long. This species and M. Halei of Magdalena and Santa Margarita Islands have similar flowers, fruit and seeds. The seeds of M. Halei were wrongly described as smooth; they are pitted in the same manner as those of this species."—Br Zoe 2:19 (Ap 1891).

MAMMILLARIA SENILIS Lodd.

Stem columnar, 2 cm high, 5 cm diameter, proliferous at base in age, axils naked, brilliant green; areoles tomentose, tomentum & spines white; radials very numerous, flexible, criniform, 4-6 centrals stronger, the upper hooked. "Grows on palms, San Luis Potosi."

Variety HASSELOFFII S [M hasselofii Eh]. Spines more numerous, all criniform.

Variety LINKEI S [M linkei Eh]. Central spines all hooked.

MAMMILLARIA SETISPINA E.

"Cactus setispinus: fasciculate and ascending, simple or branched at base, the stems about 20 cm high and 3.6 cm in diameter, densely covered with remarkably long stout spines: tubercles short and broadly conical, with axillary wool: spines white, with black tips; radials 10-12, widely spreading, very unequal, 10-34 mm long, slender and flexuous; central spines 1-4, more rigid and much longer (20-35 mm), the upper ones straight, the lowest one longest and hooked (usually upwards) and often variously curved and twisted: fruit obovate and scarlet, 20 mm long: seeds black and pitted. Type, Gabb 15 in Herb. Mo. Bot Gard. Rocky or gravelly soil, San Julio canyon, and in the vicinity of San Borgia, Lower California."—Coulter Cont U S Nat Hb 3: 106 (10 Je 1894).

Subgenus CORYPHANTHA. Plants globose or elongated, often robust, with watery juice. Tubercles (in age) grooved on the upper side. Flowers as in Eumamillaria, but some at the extremity of the groove in the axils of young tubercles, usually near the vertex of the plant.

MAMMILLARIA ALVERSONI Hort.

The Fox-tail cactus is of robust branching habit, densely covered with long stout straight spines, usually tipped with black or black half way down, shading into red, but often pure ivory white throughout. The large rose purple flowers are quite showy. The largest of some fifty plants was a cluster of six heads measuring 3 inches in diameter and about 8 inches high.

See radiosa.

MAMMILLARIA ARIZONICA Engelm.

See radiosa

MAMMILLARIA COMPACTA E.

Depressed-globose, 5–10 cm diam, simple; tubercles short-conical, crowded, 8 mm long; radials 13–16, rigid, recurved & appressed, interwoven with adjacent clusters, whitish or horny, 10–20 mm long; central erect, often wanting; fls 3-3.5 cm long and broad, yellow; fruit oval, green; seeds 1.4 mm long, smooth, yellow. Chihuahua.

MAMMILLARIA CONOIDEA P DC.

Ovate-conical, simple, 3.5–10 cm high, 4–7 in diameter below with densely woolly vertex; tubercles close, ovate, 12 mm long, axils at first woolly; radials 10–16, ashy to white, straight, stout, 6–10 mm long; centrals 3–5, 10–16 mm

long, the lower one more rigid, 15–20 mm long, brownish-black; fls deep purple, 2–3 cm long & wide. San Luis Potosi; Coahuila; Nuevo Leon.

MAMMILLARIA CORNIFERA P DC.

MAMMILLARIA DASYACANTHA E.

Mamillaria echinus E. is radians.

MAMMILLARIA ELEPHANTIDENS Lem.

MAMMILLLARIA MACROMERIS E.

MAMMILLARIA MISSOURIENSIS

Sweet hort Brit 171 [1827].

M simplex T-G Fl N Am 1:553 [1840].

M nuttallii E pl Fend 49 [1849].

M notesteinii Britton Torr cl b 18:367 [1891].

Cactus mamillaris Nutt Gen 1:295 [1818] non L.

Globose, 3.5 cm diam., simple; mammæ ovate, 12–14 mm long, slightly grooved, radials 15–17, straight, whitish, unequal, setaceous, 8–10 mm long; central more robust, longer, puberulent, or wanting; fls 2.5 cm long, stigmas 2–5; fruit globose, scarlet, 6–8 mm diam., seeds globose, black, pitted, 1.1 mm diam. Montana, Kansas, Colorado, Nebraska, South Dakota.

Star Cactus; dwarf; flowers yellow or salmon color.

MAMMILLARIA NICKELSAE K Br.

"Soon and densely caespitose, glaucous and often purplish, 4–6 cm high, hemispherical or globose; tubercles 10–12 mm long, becoming quite as broad and umbricated; spines 14–18 all radial, slender, at first yellowish with darker tips, later all gray; lower spines 8–10 mm long, the upper one-third longer, stouter, ex ending into the groove and forming a fascicle, the clustered fascicles making an upright tuft at the very ex; flowers 5–7 cm in full expansion, said to be bright yellow with red center; fruit unknown. Southward from Laredo, Texas. Named for the collector, Mrs. Anna B. Nickels, and offered in catalogues as M. Nickelsii. Evidently closely related to M. sulcata Engelm." —Katherine Brandegee, Zoe, 5: 31 (Jag 1900).

Mammillaria pectinata E. is radians.

M. POTTSII Scheer ex Salm HD ed 2, 64.

Cylindrical, 3–35 cm high, 2.5–3 diam., somewhat branching; tubercles ovate, obtuse, lightly grooved, axili woolly, radials slender, white, very numerous, rigid; centrals 6–12, outer fls pinkish; scarlet, clavate fruit. Texas; Chihuahua; Durango.

Cactus pottsii OK rev gen pl 261; Coulter 118

Mleona Pos A-Z 1853, 94:—"stelligera M. caule cylindraceo interdum prolifero diametro pollicari 4–5 poll. alto glauco, mamillis brevibus confertis; axillis lanatis, areolis nudis, aculeis exterioribus permultis intertexti albidis, centralibus 8–12, exteriores superantibus flavescentibus, summo subcurvato albo subpurpurascente." Nuevo Leon

MAMMILLARIA RADIANS P DC.

MAMMILLARIA RADIOSA E.

M. alversoni, arizonica, chlorantha, deserti

MAMMILLARIA RECURVATA E.

MAMMILLARIA STROBILIFORMIS Shr.

MAMMILLARIA SULCOLANATA Lem.

MAMMILLARIA VIVIPARA Haw.

Purple and white spines cover the entire plant; flowers bright purple, 3.5 cm long and broader when fully expanded, showy. Montana, Nebraska, Colorado, Idaho, Washington and British America —consequently one of the most hardy species known.

MAMMILLARIA WISSMANNII Hildm.

Section G ANDULIFERAE. Cylindrical; mammae cylindrical long, or ovate and more or less globose; grooves bearing more or less conspicuous glands, the grooves often absent in young plants, the glands sometimes in the axils or at the base of the tubercles.

MAMMILLARIA ASTERIAS Cels.

MAMMILLARIA BREVIMAMMA Zucc.

Near Zimipan, Mexico.

MAMMILLARIA CLAVA Pf.

"Clavato-columnaris, intense viridis; axilis tomento denso albo et glandula simplice rubella instructis, mox planissimis, nudis; mammillis elongatis erectis, dorso sulcatis, basi oblique tetragonis; areolis albo-villosis infraapicalibus; aculeis rectis, corneis, subæqualibus, radiantibus 7, centrali 1, paulo longiore, crassiore." —Pfr AGZ 1840, 282. Mexico—Ehrenberg.

Bot mag t 4358 Otto & Dietr AGZ 1845, 234–5.

M dolichocentra Lem.

MAMMILLARIA DOLICHOCENTRA Lm

Two distinct species have been figured under this name by Foerster, Schumann, & Lem

Seeclava.

MAMMILLARIA ERECTA Lem.

MAMMILLARIA GLANDULIGERA

Otto ex Dietr AGZ 1848, 298:—"obovata, subglaucescens axillis nudis; mamillis brevibus, pyramidatis, subtereribus, albido-punctatis, dorso glandular roseo albo instructis; areolis subnudis; aculeis exteri albus stellatim dispositis numerosis flavescentibus demum albi, centralibus ternis vel quaternis subulatis fuscis, unico patente, cæteris erectis. Mexico."

Is Ottonis fide KS.

MAMMILLARIA MACROTHELE Mart.

Near Zimipan, Mexico.

MAMMILLARIA OTTONIS Pf.

"Globosa simplex obscure griseo-virens; axillis fasciculo lanæ albidæ et glandula rubra tomento albo cincta instructis; mammillis crassis mammæformibus, basi interdum confluentibus, dorso usque ad glandulam sulcatis; areolis junioribus albo-villosis; aculeis radiantibus 11–12 subæqualibus rigidis rectis, 2 summis gracilioribus suberecti, flavescent., apice fusc., tandem fusco-cinereis, centralibus 3 rarius 4, (summo plerumque deficiente) subdecussatis, rigidioribus, corneis, infimo longissimo patente recurvulo." —Pfr AGZ 1838, 74 Mineral del Monte, Mexico—Ehrenberg.

MAMMILLARIA SALMDYCKIANA

Scheer ex Salm HD ed 2, 134 [1850].

M Scheerii Muehpf AGZ 1937, 97, non 1845.

M robusti spina schott ex E.

M [Cactus] brownii Tourney bot gaz 20:253

See Orcutt rev 77–78 for descriptions; it is time the name scheerii were dropped for this rare

plant of Sonora. New Mexico, Chihuahua. Texas and Arizona: the plants from San Luis Potosi is a distinct species.

MAMMILLARIA SCHEERII Muehlpf.

"Globosa multiplex: mammillis subglobosis superne sulcatis; aculeis radiantibus 20–22 albis adpressis subdistichis, centralibus 4 rectis fuscis, infimo valde elongato 8–10 lin. longo "–AGZ 1845 346; 1846, 373, is polymorpha [conoidea].

See salmdyckiana.

Subgenus DOLICHOTHELE K8.

MAMMILLARIA LONGIMAMMA P SC.
MAMMILLARIA SPHAERICA S.

Subgenus LACTESCENTES. Plants depressed-globose, rarely a little elongated; juice milky; tubercles usually angular and somewhat leathery. Flowers as in Eumamillaria, but mostly small.

MAMMILLARIA ANGULARIS L-O.

MAMMILLARIA CAPUT-MEDUSAE Otto.

Near Zimipan, Mexico.

M. DIACENTRA Jacobi AGZ 1856, 91.

"Angulosæ tetragonæ. Caule sphæroideo, subumbilicato saturate viridi lactescente. Mamillis ad basin rhomboideis, obtuse pyramidalibus apice lateraliter applanatis; pulvillis ovalibus glabris subapicalibus; axillis junioribus nudis, dein floccose albo-lanatis, serius cenno nudis. Setibus radialibus 5–6, diaphane albidis apice subsphacelatis, serius ubique albidis, subulatis vix patulis, subtus et inferne recurvulis radianter positis, 2 aut 3 superioribus brevissimis, 3 inferioribus altero tanto longioribus; aculeis centralibus 2, multo validioribus longioribusque, junioribus cinereo-brunneis apice nigris, dein carneo cinereis apice nigricansibus, superiore erecto sensim recurvato, inferiore recte patente inferne recurvulo, utroque earum basin semi terete, apice rotundato, inferiore fere altero tantum longiore. Flores parvuli rubicundi, tubo brevissimo, circa ovarium ventricose dilatato, superne coarctato, petalis lanceolatis breviter recurvatis, roseis cum linea media purpurea. Staminum filamenta rosea antheræque sordide flavæ; stylus staminibus longior roseus, stigmatibus 6 concoloribus. Floret mensibus Junio et Julio. Planta descripta altitudine tripollicari diametroque poll. $3^1/_2$. Aculeorum radialium 2 aut 3 superi lin. 1, ceteri 3, lin. 2 longi; aculeorum centralium superior lin. 6–8longus, inferior pollicari set ultra."

MAMMILLARIA FORMOSA Scheidw.

M. FUNKII Scheidw AGZ 1841, 43.—

"Lactescens, robusta, umbilicata, lacte viridis; axillis nudis, tandem criniferii; crinibus albis apice nigrescentibus ex mox unicoloribus; mammillis pyramidato-tetraedris; areolis infra apicem mammillarum immersis, nudis, junioribus vix tomentosis; aculeis 8 maxime inæqualibus, centrali 1 longissimo incurvulo, nascentibus fuscis, tandem griseis. Truncus 3 poll 10 lin altus, diametro 6 pollicari; aculei exteriores $^1/_4$–1–2 lin. longi, centralis $^1/_2$–6 lin. longus."

Mexico.

MAMMILLARIA GABBII Engelm.

Cactus gabbii Coulter, U S na Hb cont 3:109:—"Globose, 5-10 cm in diameter, simple, tubercles cylindrical, slender, 12-14 mm long, with woolly axils; radial spines about 13, 5-8 mm long, lower ones longer and stouter, especially the latest ones pectinate; the central shorter, straight and robust; flowers small, yellowish-red; fruit unknown.—Type in Herb. Mo. Bot. Gard. Among rocks, from San Ignacio to Mission San Fernando, Lower California."

Near San Quintin bay, Baja Cal. (Orcutt).

Cactus brandegei Coulter, U S Na Hb cont 3:76.

MAMMILLARIA GEMINATA Scheidw.

—"Lactescens, trunco geminato; vertice umbilicato; axillis lanatis; mammillis tetragono-polyædris, viridibus; areolis junioribus lanatis, dein nudis; aculeis exterioribus 6 rectis, stellatis, apice nigrescentibus; centrali 1 validiore curvula nigro. Mammillæ 4 lin. longæ; aculei exteriores 2½ lin. longi centralis longitudine 3 lin."—AGZ 1841, 42. 5000 ft altitude near Oaxaca, Mex.

MAMMILLARIA GIGANTEA Hildm.

MAMMILLARIA GUMMIFERA E.

MAMMILLARIA HEESEANA Mac Dow.

MAMMILLARIA HEYDERI Muehlenpf.

"Globosa, viridis, vertice impresso, axillis junioribus lanatis, mamillis conicis, elongatis, 6 lineas longis, 3 lineas latis areolis junioribus albo-tomentosis apice mamillarum dispositis; aculeis radiantibus 20–22 albis setaceis, inferiori robustiori paululum elongato, centrali 1, erecto corneo basi apiceque fusco 2½–3 lineas longo."—Mhlpfdt AGZ 1848, 20. Texas.

Regel Gartenflora 1880, 52, f.

Scheele. Roem Texas, 435 (1849).

M. KRAMERI Muehpft AGZ 1845, 347:

"Globosa, basi tandem prolifera; axillis lanatis; mammillis angulosis pyramidalis, junioribus lanatis, aculeis exterioribus 4–5 rigidis, centrali 1 elongato 1½–2 poll. longo, omnibus albis apice nigris Die pflanze ist aus Mexico, und erhielt ich dieselbe vom Kramer in Hamburg, unter den Namen M. macrantha."

Runge sent under this name from San Luis Potosi, which bore flowers ¾ inch long, ½ inch across, 12 maroon purple sepals, 16 white petals with maroon midvein, 6 stigmata, style, filaments and anthers white

M Schmidtii (schmittii) Ske.

M. LEUCOTRICHA Scheidw AGZ 1840, 338:

"M. lactescens, simplex vel cæspitosa, cylindrica, vertice umbilicato; mammillis pyramidatis quadrangularibus; axillis primo nudis, tandem lana abundanti; aculeis criniformibus, albis munitis; areolis rotundis lana alba instructis; aculeis exterioribus 6, centrali 1, omnibus rigibis subæqualibus fuscis, tandem carneis apice sphacelatis. Fructus pyriformis; flores adhuc ignoti " Mexico.

Jacobi AGZ 1851, 11.

See maschalacantha.

M. MASCHALACANTHA Cels.

M. mutabilis lævior Salm, HD ed 2, 120.

Cactus mutabilis OK

M. leucotricha (leucocarpa) Scheidw.

Variety LEUCOTRICHA Monv.

M. mutabilis et funkii Schdw.

M. Senkei Foerst.

Variety XANTHOTRICHA Monv.

M. xanthotricha Schdp. Cactus xanthotrichus OK. M mutabilis xanthotricha S.

M PALLESCENS Scheidw AGZ 1841, 42.

"Lactescens, cylindrica aut ovata; vertice umbilicato subacu eis abscondito; axillis maxime lanatis, lana aculeis adhærente et mammillis involvente; areolis tomentosis, tandem nudis; mammillis polyacdris, laete viridibus, mox pallescentibus; aculeis 4 cruciatim dispositis, angulatis, recurvis, supremo maximo subtorto, omnibus rigidis, carneis." 5500 ft alt Tehuacan.

MAMMILLARIA MEIACANTHA E.

MAMMILLARIA SEMPERVIVI P DC.

Near Zimpan, Mexico.

MAMMILLARIA TROHARTII Hilldm.

MAMMILLARIA UNCINATA Zucc.

Schumann includes the following in this group, but as known to us all are not milky.

M. CELSIANA Lem.

M. PRAELII Muehlenpf.

M. PYRRHOCEPHALA Scheidw.

M. ZEYERIANA F Haage jr

M. CENTRICIRRHA Lemaire.

M. CROCIDIATA Lemaire

M. KARWINSKIANA Mart.

MAMMILLARIA BICOLOR Lehm.

Near Zimipan, Mexico.

Variety NIVEA KS.

MAMMILLARIA CARNEA Zucc.

Near Zimpan, Mexico.

MAMMILLARIA ELEGANS DC.

MAMMILLARIA LAVOVIRENS S.

MAMMILLARIA HAAGEANA Pf.

MAMMILLARIA MELALEUCA Karw.

MAMMILLARIA MELANOCENTRA Pos.

MAMMILLARIA MUTABILIS Scheidw.

MAMMILLARIA NIVOSA Link.

MAMMILLARIA OBSCURA Hilldm.

MAMMILLARIA PARKINSONII Eh.

MAMMILLARIA PERBELLA Hilldm.

MAMMILLARIA PHYMATOTHELE Berg.

MAMMILLARIA POLYEDRA Mart.

MAMMILLARIA SEITZIANA Mart.

Near Zimipan, Mexico.

MAMMILLARIA SIMPLEX Haw.

Subgenus EUMAMILLARIA. Plants globose or elongated, with watery juice, and cylindrical or conical grooveless tubercles. Flowers borne usually in a ring near the top of the plant, cup-shaped or expanded, as broad or broader than long. Sepals appressed. Stamens and styles shorter than the corolla.

MAMMILLARIA ACICULARIS Lem.

MAMMILLARIA ACTINOPLEA Eh.

MAMMILLARIA ALPINA Mart.

MAMMILLARIA AMABILIS Eh.

MAMMILLARIA AMBIGUA G. Don.

MAMMILLARIA AMOENA Hopff.

MAMMILLARIA ANCISTRATA Schelh.

MAMMILLARIA ANCISTRIA Walp.

MAMMILLARIA ANDREAE Pf.

MAMMILLARIA ARGENTEA Fenn.

MAMMILLARIA ARICTINA Lem.

MAMMILLARIA ARMILLATA K Br.

"Stems somewhat attenuate, reaching 3 dm in hieght, 4-5 cm in diameter, usually in clusters of 3-12, from the base, often branching above; tubercles somewhat leathery in texture; conical, somewhat angled; axils setose and sparsely woolly; radial spines 9-15, 7-12 mm long, the inner half whitish or grayish; centrals 1-4, 10-20 mm long, the lower one hooked and longer, all, and the outer part of the radials dark brown, yellowish or gray; flowers 1-2 cm long, scarcely spreading, flesh color; fruit red, clavate, 1½-2 cm long; seeds coriaceous, dull black, about 1 mm long, obliquely obovate, constricted above the more slender basal portion; surface covered with minute, not closely contiguous pits, the intervening spaces minutely wrinkled; hilum basal, narrow. San Jose del Cabo, Baja California. The name is in allusion to the dark bands which encircle the plant, giving it much the appearance of a raccoon's tail."—Katharine Brandegee, Zoe, 5:7 (Je 1900).

MAMMILLARIA ATRORUBRA Eh.

MAMMILLARIA ATROSANGUINEA Eh.

MAMMILLARIA AULACANTHA P DC.

MAMMILLARIA BADISPINA F.

MAMMILLARIA BARBATA Engelm.

MAMMILLARIA BARLOWII R-K.

MAMMILLARIA BELLATULA F.

MAMMILLARIA BERGENII Eh.

MAMMILLARIA BERGII Mig.

MAMMILLARIA BIFURCA Dietr.

MAMMILLARIA BINOPS Hge.

MAMMILLARIA BOCASANA Pos.

This beautiful plant is covered with the fines tender hair like spines.

Near San Luis Potosi, Mexico.

MAMMILLARIA CANDIDA Scheidw.

MAMMILLARIA CARRETII Rebut.

Is Pringlei.

MAMMILLARIA CONICA Haw.

MAMMILLARIA DECIPIENS Schw.

Loose tubercled small growing species with delicate & pretty yellow fls

MAMMILLARIA DIOICA K. Brandg.

M. Goodridgii Engelmann (not Scheer?). small globular species, closely set with brownish or white spines, the central one curved

into a hook. The delicate yellowish white flowers are succeeded by the club-shaped, scarlet berries that possess the flavor of wild-wood strawberries, and are sometimes called "hep-pitallas," the "flavina" of the Mexicans.

MAMMILLARIA ELONGATA P DC.

MAMMILLARIA FLAVA E.

MAMMILLARIA FORDII Orcutt.

Ovate, 2 inches in diameter, and about 3 high, rarely branching at base; tubercles obtuse, ¼ inch across, short, 12 radial spines cinereous, ⅜–½ inch long, the solitary central black and hooked, ¼ inch long; flower an inch long, white with about 9 petals and 9 sepals—the latter with purplish midvein on the back, 6 stigmata of a brownish green style greenish, filaments white and anthers orange yellow; flowers in July; Baja California on the west coast, collected for L. M. Ford, 1899. Near M. Goodridgii.

MAMMILLARIA FULIGINOSA S.

MAMMILLARIA GLOCHIDIATA Mart.

MAMMILLARIA GOODRIDGII Scheer.

MAMMILLARIA GRACILIS Pf.

MAMMILLARIA GRAHAMII E.

1 to 3 inches high, subglobose, simple or branching from the base, tubercles ovate, axils naked; radial spines in one series, 20 to 30 in number, 3 to 6 lines long, rigid and whitish, surrounding a stouter and longer hooked brown one. Flowers small, nearly 1 inch wide, reddish; berry oval, green, with small pitted seeds. The well-known "Arizona Strawberry" or small Fishhook Cactus of N. M., Arizona and Utah, rare in California.

MAMMILLARIA GRUSONII Runge.

MAMMILLARIA HUMBOLDTII Lh.

MAMMILLARIA INCURVA Scheidw.

MAMMILLARIA INTRICATA Otto.

MAMMILLARIA LASIACANTHA E.

Variety DENUDATA Engelmann.

Mammillaria leona Pos, is Pottsii.

MAMMILLARIA LESAUNIERI Rebut.

MAMMILLARIA MAELENII S.

MAMMILLARIA MAINAE Br.

"Hemispherical to ovate, simple, or sparingly branched from the base, reaching a height of 10cm; tubercles glaucous, somewhat incurved, cylindric, becoming conical, 1-1½ cm long, often bright red in the naked axils; radial spines, 10-15, yellowish, becoming white, slender, scarcely pungent, 6-10 mm long, the upper rather the shorter; centrals 1-2, both hooked, rarely an additional upper one; lower central, usually the only one, nearly twice as long as the radials, stout and strongly hooked, pinnet, brown below, blackish above, sometimes twisted; the second central when present, widely divaricate, ascending, weaker and shorter; flowers in crown at upper part of stem, pinkish-white or flesh-color, 1-1½ cm in length, including the ovary; style whitish, deeply, few-lobed fruit red, globular, to obovate, shorter than the tubercles; seeds dull-black, punctate, a little more than 1 mm long, obovate, with narrowly-linear basal hilum. Named for the collector Mrs. E. M. Main, who found it in Sonora, south of Nogales. It has been offered by dealers as M. Galestlii Ssheid, to which it is not at all related."—Katharine Brandegee, Zoe, 5:1 (ag 1900).

MAMMILLARIA MICROMERIS E.

mushroom cactus, found in Texas, resembles a silk-covered button, and can be handled without gloves. The delicate, starry net work of snowy-white spines over the green plant gives it a very beautiful appearance.

Variety GREGGII Engelmann.

MAMMILLARIA MINIMA Reichb.

Mexican species, cylindrical, forming numerous heads around the base, which readily take root when detached. About 20 slender white spines radiate from the center of each hemispherical tubercle, enveloping the plant like a bit of delicate lace; no central spine.

MAMMILLARIA NICHOLSONII Mac Dow.

Mammillaria nogalensis Runge cat, is recurvata E.

MAMMILLARIA OLIVIAE Orcutt.

Globose to ovate, 2½ inches in diameter, 3 inches high, simple or rarely branched or cespitose; tubercles ovate, ¼ inch long, axils naked; radials 25-36, snowy white, slender, rigid, ¼ inch long, upper ones shorter; centrals 1-3, the lower one only an eighth of an inch long, erect, rigid, white or tipped with chocolate brown; the two upper centrals slender, white or rarely tipped with brown, 3 times as long, closely resembling the radials; lower central rarely longer, but occasionally even ½ inch long, slender or flexuous, brownish and hooked upward—more frequently seen on the lower outer tubercles of young plants; fruit scarlet, clavate, with small seeds. Type, Orcutt, No. 2602:—Of snowy whiteness from its numerous interlacing spines; dedicated to the author's life partner, who has accompanied him in thought on the mountains and deserts of Arizona, where this beautiful plant occurs.

Mammillaria petersonii Hldm, is Heeseana.

Mammillaria pfeifferi Booth, is rhodantha.

MAMMILLARIA PHELLOSPERMA E.

MAMMILLARIA PLUMOSA Web.

MAMMILLARIA PRINGLEI K Br.

Katharine Brandegee, Zoe, 5:7, publishes this name (based on Cactus Pringlei Coulter), and states that it seems to scarcely differ from M. Carretii.

MAMMILLARIA PUSILLA Sweet.

MAMMILLARIA RHODANTHA L-O.

Oblong or subcylindric, 30 cm high, 7.5-10 in diameter, often bifurcate; tubercles conical, 12 mm long, 8 in diameter; with woolly axils; radial spines 16-20, bristle-like, white the lower 8-10 mm long; central spines 6 or 7, rigid, whitish with black tip, 12 mm long; flowers rose-color, 12 mm broad; fruit 2.5 cm long, cylindrical. Mexico.

MAMMILLARIA SPHACELATA Mart.

MAMMILLARIA SPINAUREA S.

MAMMILLARIA SPINOSISSIMA Lem.

MAMMILLARIA STELLA-AURATA Mt.

MAMMILLARIA THORNBERI Orcutt.

Cylindrical, 1¼ inch in diameter, usually 2-3 inches high, erect, with 8 or 9 spiral rows of tubercles, axils naked; 13-18 slender white or brown tipped radials ¼ inch long; usually 1 slender flexuous hooked central one-fourth to three-fourths of an inch long, tipped with brown; fruit clavate, scarlet, containing minute black seeds. Tips of tubercles olive green, base and axils and sunken portion of plant tinged with purple; radials usually 13, the upper sometimes the longest, often brown nearly to the base; central occasionally brown, usually the lower half white or yellowish, often hooked upward, but often twisted and turning in every direction. Plant proliferous at base, forming numerous offsets in the axils of the buried or lower tubercles; these quickly take root and usually soon sever connection with the parent, thus forming dense compact masses of old and young plants, usually 10-50—but in one, perhaps not exceptional case, I counted 110 distinct plants, in a cluster—all apparently originating from the tallest individual in the group. Occasionally a plant, from injuries sustained, becomes bifurcate or forms a number of aerial heads which remain permanently attached—but which usually form roots of their own and eventually survive the death of the parent. More than 1 central spine appears very rare, but 2 or three sometimes appear from the same small woolly areola, one or all hooked, of equal or varying length. The largest plant among over 1,000 was 1½ inch in diameter and nearly a foot high! Type, Orcutt, No. 2583:—Arizona. Curiously the same plant was found a few days earlier than by the author by Prof. J. J. Thornber, and planted in the cactus garden of the University of Arizona, and this interesting addition to the cactus flora of the United States may therefore appropriately bear his name.

MAMMILLARIA TOALDOAE Lehm.

MAMMILLARIA UMBRINA Eh.

MAMMILLARIA VALIDA Web.

MAMMILLARIA VENUSTA K Br.

"Simple, becoming caespitose in clusters of, in extreme cases, as many as 40; heads 2-4, very rarely, in center of large clusters, 6 cm high, a little less in diameter; tubercles thick and short, concave at the end, greenish, purplish to nearly white, glaucous; axils only slightly woolly, soon marked; radial spines, 9-15, stout, 6-12 mm long; centrals typically solitary, 10-15 mm, sometimes 2 or 3, in a single specimen 4, porrect-spreading, the 3 upper very short; flowers about 4 cm in diameter, rose-color, widely spreading, tube very short; petals lanceolate acute, recurved-spreading; style-branches 5, apparently rosy brown; fruit 1½-2 cm long, scarlet, linear, circumscissile some distance above the base, nearly dry; seeds oblong-obovate, rather less than one mm long, constricted above the basal portion, which is half as long and nearly as wide as the upper; surface dull, minutely pitted, the pits much obscured by delicate intervening striae; hilum basal, large and triangular.

"Collected by Mr. T. S. Brandegee in the vicinity of San Jose del Cabo, Baja California, in Sept. 1890. (No. 240, M. Goodrichii, of 'Flora of the Cape Region'); again Sept. 1893, and for the third time last year in numerous living specimens. The spines are from pure white, barely tipped with brown, to dark brown, whitish only near the base. The flowers, which appear in September, hide the whole plant, and it is of such low growth as to look like a beautiful cluster of flowers springing from the sand. The fruit appearing in winter is nearly dry and falls very readily when ripe, leaving most of the seeds in the axillary cup. It is the only circumcissile Mammillaria known to me."—Katherine Brandegee, Zoe, 5:8 (Je 1900).

MAMMILLARIA VETULA Mart.

MAMMILLARIA WILCOXI Tourmey.

Usually simple, depressed-globose; 14-16 slender subulate whitish radials 10 mm long; solitary hooked central brownish; axils naked. Fruit (16 O 1896) flesh color faintly tinged with carmine, the black seeds showing through the transparent epidermis. Near Congress and Benson, Arizona (Orcutt).

MAMMILLARIA WILDII Dietr.

MAMMILLARIA WRIGHTII E.

MAMMILLARIA ZEPHYRANTHOIDES Scheidw.

Mamillopsis senilis Web, is Mammillaria senilis Lodd.

Genus MELOCACTUS De Candolle.

Globose fleshy plants 1-3 feet in diameter, regularly ribbed, ribs bearing clusters of spines, surmounted with a woolly cylindrical cap closely set with softer spines, upon which the small tubular red or rose-colored flowers are borne. Of little value horticulturally and rarely cultivated with success. Generally found in rocky or sandy dry situations in tropical America and West Indies.

MELOCACTUS VIRIDESCENS Nutt.

Nuttall ex Teschem in J Bost Soc Nat Hist 5:293 (1845).—A synonym of Echinocactus viridescens.

The Melocacti are natives of the West Indies, and tropical America.

Genus MYRTILLOCACTUS Console.

MYRTILLOCACTUS GEOMETRIZANS C

Cereus geometrizans Mart.

Cereus cochal Orcutt.

Genus PELECYPHORA Ehrenb.

PELECYPHORA ASELLIFORMIS Ehrenb.

The Hatchet cactus is a little gem from Mexico, so-called from the shape of the tubercles. It bloomed in San Diego on May day, scarce ½ inch in length and breadth, with thirteen bright magenta colored petals and seven or eight pale lavendar sepals, the four stigmata white, style and filaments tinged with purple, and anthers bright orange. The largest plant

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